

REMARKS/ARGUMENTS

In view of the following remarks, reconsideration of the pending claims is respectfully requested.

Claims 1 – 9 and 14 – 25 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of U.S. Patent No. 6,187,411 to Palmer and U.S. Patent Publication No. 2003/0037361 to Steeghs et al. Claims 10 – 13 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Palmer, Steeghs, and U.S. Patent No. 3,381,420 to Brink et al.

Palmer describes a rigid composite sandwich panel having an improved tolerance for damage caused by impacts from a foreign object. As discussed in the background of Palmer, the sandwich panels are used in structural applications such as vehicles, aircrafts, etc. The sandwich panels described in Palmer have a foam core that is sandwiched between a pair of outer skins that comprise a fibrous material, such as glass, boron, carbon, Kevlar, etc. The skins are applied to opposite sides of the foam core and are then secured to the core with stitching. Thereafter, the assembled sandwich panel is impregnated with a resin matrix. Palmer further describes an embodiment in which the foam core is coated with a layer of rubber or elastic material prior to laying and stitching the skins to the core. The elastic material prevents the resin from impregnating the core during resin impregnation of the panel. In fact, Palmer specifically states that “[b]y preventing accumulation of excess resin in the holes, the weight of the panel is reduced.” See column 6, lines 8 – 9.

Steeghs on the other hand, is directed to a ballistic vest that is to be worn by a person. This is a completely different field of endeavor than the composite panel described in Palmer, and as such Steeghs and Palmer are directed to completely different objectives and solutions. In particular, Steeghs teaches that the ballistic vest needs to stop impacts while being lightweight. The ballistic vest includes a loose outer fabric layer having a generally three dimensional structure such as a honeycomb weave. Steeghs states that it is essential that the fabric be drapeable.

Applicants respectfully submit that one of ordinary skill in the art would have no motivation to combine Palmer and Steeghs in the manner contemplated by the Examiner.

Specifically, neither Palmer nor Steeghs provide the motivation to combine the composite sandwich panel of Palmer with the loose fabric layer described in Steeghs.

First, one of ordinary skill in the art would not be motivated to combine the teachings of Palmer and Steeghs because they are directed to two completely different fields of endeavor. As noted above, Palmer is directed to a composite sandwich panel that is used in structural applications whereas Steeghs is directed to a ballistic vest that is wearable by a person. As such, the problems and resulting solutions that are addressed by Palmer and Steeghs are different from each other. For instance, Steeghs is directed to a ballistic vest wherein comfort is a concern and it is essential that the outer fabric layer is drapable. See paragraph 0011. In contrast, Palmer is directed a structural sandwich panel in which a high strength to weight ratio and resistance to delamination are problems to be addressed; drapability and comfort of the outer skin layers is not even a consideration. As such, one of ordinary skill in the art would have no motivation to apply the teachings of Steeghs in constructing an outer skin for use in the sandwich panel of Palmer. Thus, one of ordinary skill in the art would not be motivated to select disparate and unrelated elements from Steeghs to be combined with the wholly unrelated sandwich panel of Palmer.

Second, the teachings of Palmer actually teach away from the proposed combination. Palmer teaches that the use of excess resin should be avoided to help reduce the weight of the panel. See column 6, lines 8 – 9. However, Steeghs teaches a loose fabric layer that is loosely woven so that the fabric has a voluminous or three dimensional structure. In fact, Steeghs teaches that the fabric is drapable and is woven so that warp and weft fibers do not cross one another in a 1:1 ratio. As a result, the fabric layer of Steeghs is lighter and less dense, which results in a greater volume of space within the fabric. This increase in the volume of space would be even more amplified in a fabric having a honeycomb weave. As a result, the loose fabric layer of Steeghs would have a greater volume that would be filled with resin during the resin impregnation step described in Palmer, which would result in increasing the weight of the fabric panel. However, Palmer specifically teaches away from using excess resin so that the overall weight of the sandwich panel is lessened. Accordingly, one of ordinary skill would be motivated away from using the honeycomb structure described in Steeghs in the sandwich panel of Palmer because it would result in an accumulation of excess resin and increase the weight of the sandwich panel.

Third, neither Palmer nor Steeghs provides the necessary nexus to motivate one of ordinary skill in the art to combine the fabric layer of Steeghs with the sandwich panel of Palmer. The Examiner alleges that the motivation comes from a reduction in weight that would be achieved with a honeycomb structure. However, Steeghs teaches the use of a honeycomb structure for providing a loose fabric. There is absolutely no teaching in Steeghs that would motivate one to select a honeycomb structure for the sandwich panel of Palmer. Rather, the Examiner appears to be using hindsight to recreate the claimed invention. Moreover, as noted above the honeycomb structure of Steeghs would actually increase the weight of the resulting sandwich panel, and therefore one of ordinary skill in the art would not be motivated to modify Palmer as contemplated by the Examiner. The only reasonable motivation for combining the references comes from Applicants' own teachings, which is impermissible.

With respect to dependent Claims 3, 24, and 25, none of the cited references describe a composite panel having a cellular core that at least partially infiltrates the outer skin layers. Such a structure is not described in Palmer, Steeghs, or Brink. As discussed above, Palmer teaches a sandwich panel in which the outer skins are applied to a previously formed core, and therefore the core does not partially infiltrate the outer panels. Neither Steeghs nor Brink even include a cellular core and therefore do not provide this element. Further, the Examiner has not addressed where the subject matter of Claims 3, 23, or 24 can be found in the cited references. Accordingly, Claims 3, 23, and 24 are patentable over the cited references, whether considered individually or in combination, because the references fail to disclose or suggest an insulation having a cellular core that at least partially infiltrates the fabric layers.

From the foregoing remarks it can be seen that one of ordinary skill in the art would not be motivated to combine the teachings of Palmer and Steeghs as contemplated by the Examiner. Accordingly, independent Claims 1, 16, and 23 are patentable over the cited references and it is respectfully submitted that the rejections under 35 U.S.C. § 103(a) have been overcome. Further, Brink also fails to cure the deficiencies of either Palmer or Steeghs and therefore the rejections under 35 U.S.C. § 103(a) based on the combination of Palmer, Steeghs, and Brink have also been overcome.

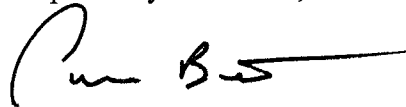
Appl. No.: 10/669,980
Amdt. dated 11/29/2006
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Conclusion

In view of the amendments and remarks made above, Applicant submits that the pending claims are now in condition for allowance. Applicant respectfully requests that the claims be allowed to issue. If the Examiner wishes to discuss the application or the comments herein, the Examiner is urged to contact the undersigned by telephone.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,



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